

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
30 June 2005 (30.06.2005)

PCT

(10) International Publication Number  
**WO 2005/058760 A1**

(51) International Patent Classification<sup>7</sup>: C02F 1/00,  
1/24, 1/58, 1/60, 1/62, 1/64

(74) Agent: FISHER ADAMS KELLY; Level 13 AMP Place,  
10 Eagle Street, Brisbane, QLD 4000 (AU).

(21) International Application Number:  
PCT/AU2004/001773

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(22) International Filing Date:  
17 December 2004 (17.12.2004)

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(25) Filing Language: English  
(26) Publication Language: English

Published:

— with international search report

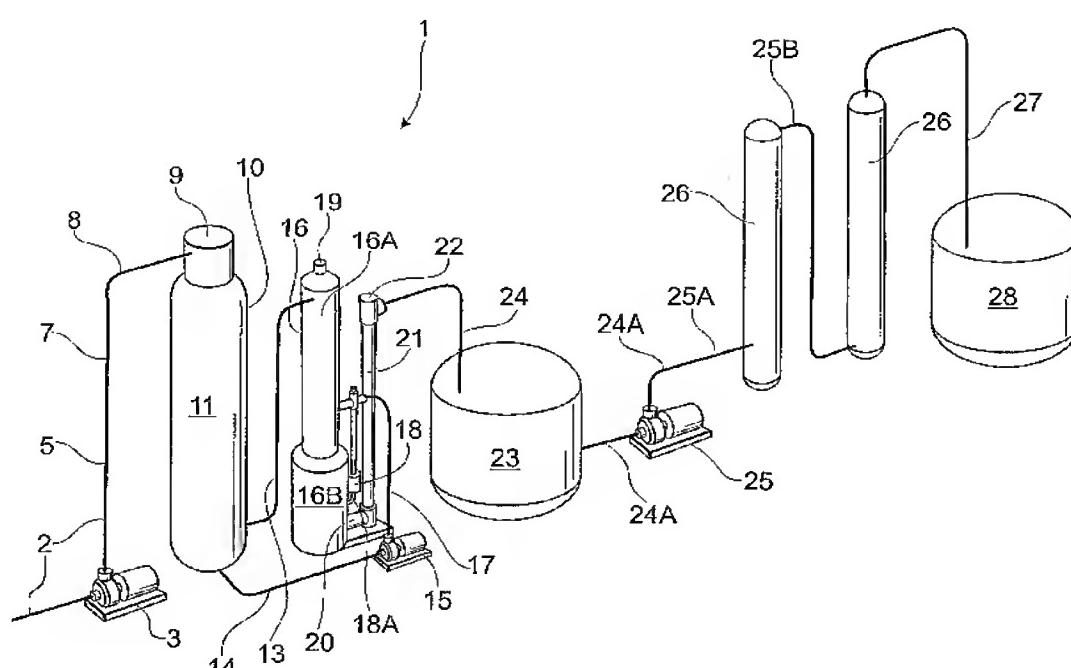
For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(71) Applicant (for all designated States except US): AN-GELERİ, Denis [AU/AU]; 19 Marathon Drive, Mt Eliza, Victoria 3930 (AU).

(71) Applicants and

(72) Inventors: ERIKSSON, Bengt Goran [SE/AU]; 16 Navua Street, Strathpine, Queensland 4500 (AU). ORPIN, Stephen Ross [AU/AU]; 16 Garnet Avenue, Kallangur, Queensland 4502 (AU). GRAHAM, Timothy Kevin [AU/AU]; 31/391 Belmont Road, Belmont, Queensland 4153 (AU).

(54) Title: WATER TREATMENT PROCESS



(57) Abstract: A method of purifying water or wastewater that comprises the steps of adding a treatment agent to the water, passing the water through a mixing zone, and passing the water through a foam fractionation zone to provide purified water. The water or wastewater can be any type of water found in sewage pipes or any water discharged from domestic, commercial, industrial, agricultural or aquaculture (fresh or marine) processes, or groundwater, bore water and reservoir water. A system for purifying water, the system including a mixing zone comprising one or more mixing columns for mixing the water with a treatment agent and a foam fractionation zone for purifying the water, the foam fractionation zone in liquid communication with the mixing zone. A foam fractionation column comprising a column body, column base, a first water inlet located around the top of the column body, a second water inlet located in the column base and including gas injecting means for introducing gas into said second water inlet, a water outlet located in the column base, a foam formation zone located at the top of the fractionating column above the first water inlet; and a foam compression zone located above the foam formation zone comprising a frusto-conical section and a foam outlet; wherein the length of the column body is between 150-200% greater than the length of the column base; the diameter of the column base is at least 50% larger than the diameter of the column body; and the base and body of the column are interconnected by a frusto-conical section, the edges of the frusto-conical section sloped at 45-80 degrees.

WO 2005/058760 A1